

buildings in Throgmorton Street. He was architect to the Stock Exchange for 35 years, and designed the new Dome (forming a large extension of the "House" or market), the new offices in Throgmorton Street, and the long frontage in Old Broad Street, erected in 1882–88, besides carrying out numerous alterations and additions before and after those dates. He never undertook any astronomical work, though he was fond of looking through his own telescope, and he "had the pleasure (at Sutton, Surrey) of a clear observation of the Transit of *Mercury* in 1878," but he followed the work of others with keen interest, and was much attached to our Society, which he joined in 1862 March. About a fortnight before his death, and in anticipation of it, he desired his wife to write to the Secretary of the Society indicating some of the facts here mentioned, and specially recording that his greatest comfort was that he had been one of the fathers of sanitary science, and the means of abolishing the terrible system of *one* water cistern for all purposes the civilised world over. With the letter was enclosed a reprint of a letter in the *Times*, dated 1856 August 4, calling attention to this system, and its great dangers during the cholera epidemic of that time, suggesting the immediate erection of stand-pipes for drinking purposes and the ultimate abolition of the single-cistern system. The stand-pipes were set up forthwith, and Mr. Cole lived to see his principles universally adopted. While a member of the Society he resided successively at 24 Essex Street, Strand, at Hornsey Rise, and at Mayland, Sutton, Surrey, where he had a large room built for his telescopes. He died in this house on 1897 May 10, aged 82. He was twice married, and his wife, three sons, and a daughter survive him. He was elected a Fellow of the Society 1862 March 14.

SAMUEL COTTAM was born 1828 December 3 in Manchester, where the Cottams have held a prominent position for more than a century. [The family claims descent, according to a tradition, from Kotta the Dane.] He was a chartered accountant, head of the firm of Messrs. S. E. Cottam and Son; a man of marked business capacity, and an excellent financier. He did not live to retire, for, though an invalid, he carried on work at his residence, Wightwick House, Higher Broughton, where he died 1896 September 1. He married, in 1858, Mary, youngest child of John Justin Southam, and two children survive—a son in orders, and a daughter who is an artist. Mr. Cottam was a man of varied attainments—a water-colour painter and a musician, a keen gardener and photographer, and a traveller in days when travelling was not so easy as now.

He was elected a Fellow of the Society on 1871 January 13.

The Rev. JOHN EDWARD CROSS was born at Red Scar, Preston, Lancashire, 1821 April 10, the son of William Cross. He was educated at Rugby and Christ Church, Oxford, and ordained in

1846 to a curacy in Bolton, where he remained till 1849, when he became curate and then vicar of Appleby, in Lincolnshire. He married, in 1854, Elizabeth, daughter of Admiral Sir Phipps Hornby, Rear Admiral of England. He became Prebendary of Leicester St. Margaret's in 1880, and in 1882 Rural Dean of Man-lake. He resigned the living of Appleby in 1891, and went to live at Halecote, near Grange, Westmoreland. His health failed soon after, and he died, after a long and painful illness, at Scarborough, 1897 February 28.

Canon Cross was interested in astronomy from boyhood. One of his earliest recollections at Rugby was that of an eclipse of the Sun, on Sunday afternoon 1836 May 15, when Dr. Arnold altered the hour of divine service so as to allow the boys to watch the phenomenon. During his curacy in Bolton he made good use of a small telescope which ultimately became the finder to a larger equatorial. At Appleby he built a good observatory; and the mirrors for his large reflector were polished by his brother William.

[This brother, Colonel William Assheton Cross, who died in 1883, was also a Fellow of our Society. From the notice in the Council Report for 1884 February it is clear that the two brothers had much in common. Colonel Cross was educated at Rugby and Trinity, Cambridge; and in his college days had mounted a 5-inch by Dollond, once the property of the Rev. W. R. Dawes. From Lassell he learnt to grind mirrors, and made a 15-inch of great excellence, which he mounted equatorially. The following sentence is interesting from several points of view: "By a rude stroke of fate, one which denotes the rapid strides that have been made in the size of astronomical instruments in the course of one generation, Dawes's refractor, mentioned above, was degraded to become the finder of the new reflector." It may here be mentioned that the only surviving brother is the Right Hon. Viscount Cross, Lord Privy Seal.]

Canon Cross was, however, more interested in transit observations than in using his reflector. In his summer holidays, which were always spent in Rannoch, he took great interest in collecting all the details, and, as far as possible, discovering the stations used in the last century by Maskelyne in the Schehallien experiment; and though he never identified the actual spot where the principal observations were taken, he got a good approximation to it.

He was elected a Fellow of the Society on 1862 May 9.

ALEXANDER FREEMAN was born in London 1839 January 28. He was educated at Merchant Taylors' School, and at St. John's College, Cambridge, where he graduated in 1861 as fifth wrangler. He was elected a Fellow of his college in 1862 May, and in the same year he obtained the Chancellor's medal for legal studies. Soon after this he took holy orders, and became M.A. in 1864.

Soon after taking his degree Mr. Freeman devoted himself to astronomy, which was the great love of his life. His first pub-